μBAT Summary

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Outline

- Short-term priorities
- Overview of available code
- Future plans

Short-term Priorities

- We need a working simulation of the detector and beam line to help in detector design studies
  - Establish LArSoft documentation on the web
  - Develop μBooNE geometry for ROOT and G4, including shielding
  - Simulate ionization drift and electronic readout
  - Simulate neutrino interactions (GENIE/Nuance)
  - Define data structure
- Most have had some progress, still work to do on all of them

Available Code

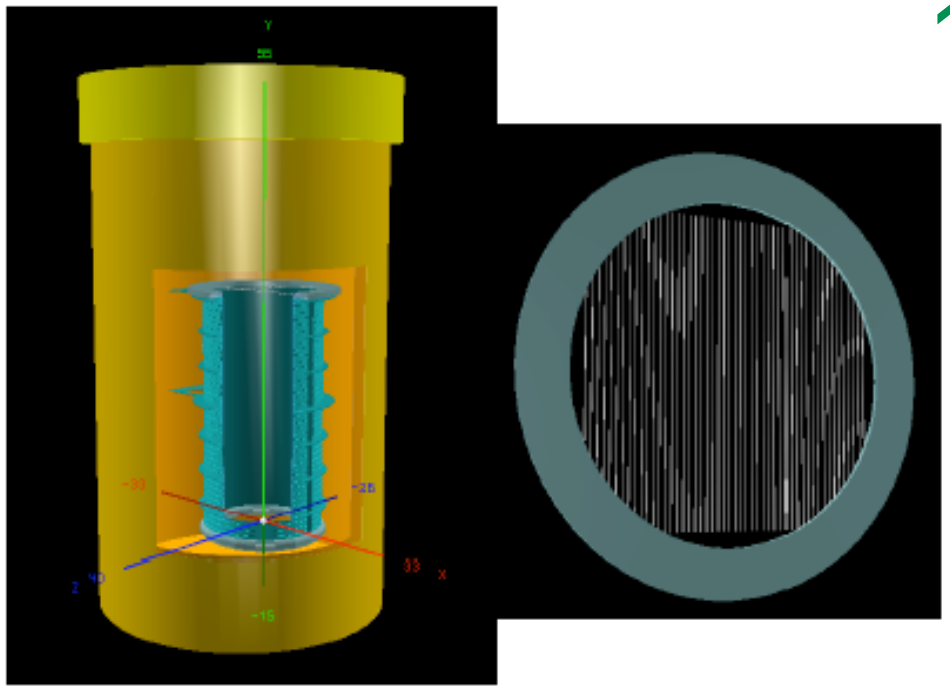
- LArSoft has been compiled and is available at Fermilab
- Send email with your FNAL username to brebel@fnal.gov to access the code
- I/O, job control, data handling are managed by FMWK
- Basic objects to describe the data, geometry navigation, event displays and simple reconstruction algorithms are already available
- Documentation efforts are underway - wiki page will soon be available
- Local installations can be made, with the caveat that there may be problems depending on local setups

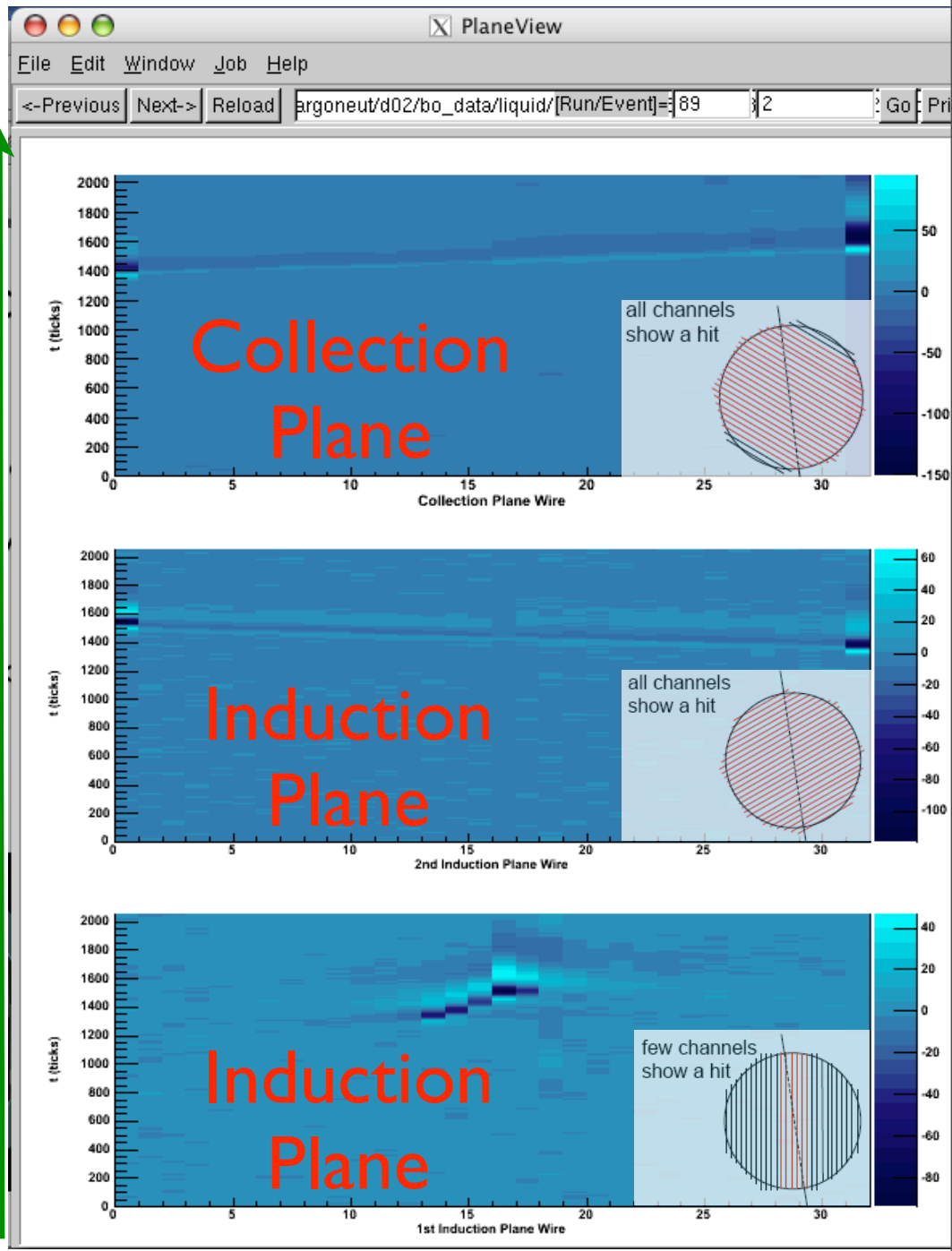
Simulations

- We are benefiting from simulation work started for ArgoNeuT
- Mitch wrote a general description of modeling LAr detectors in G4, posted as docdb-165
- Josh wrote a note about using GENIE & Nuance generators, posted as docdb-80
- Both are useful starting points for developing the μBooNE simulation
- Bill has agreed to start coding the geometry - which will include both the detector and the surrounding environment

LArSoft Examples From Bo

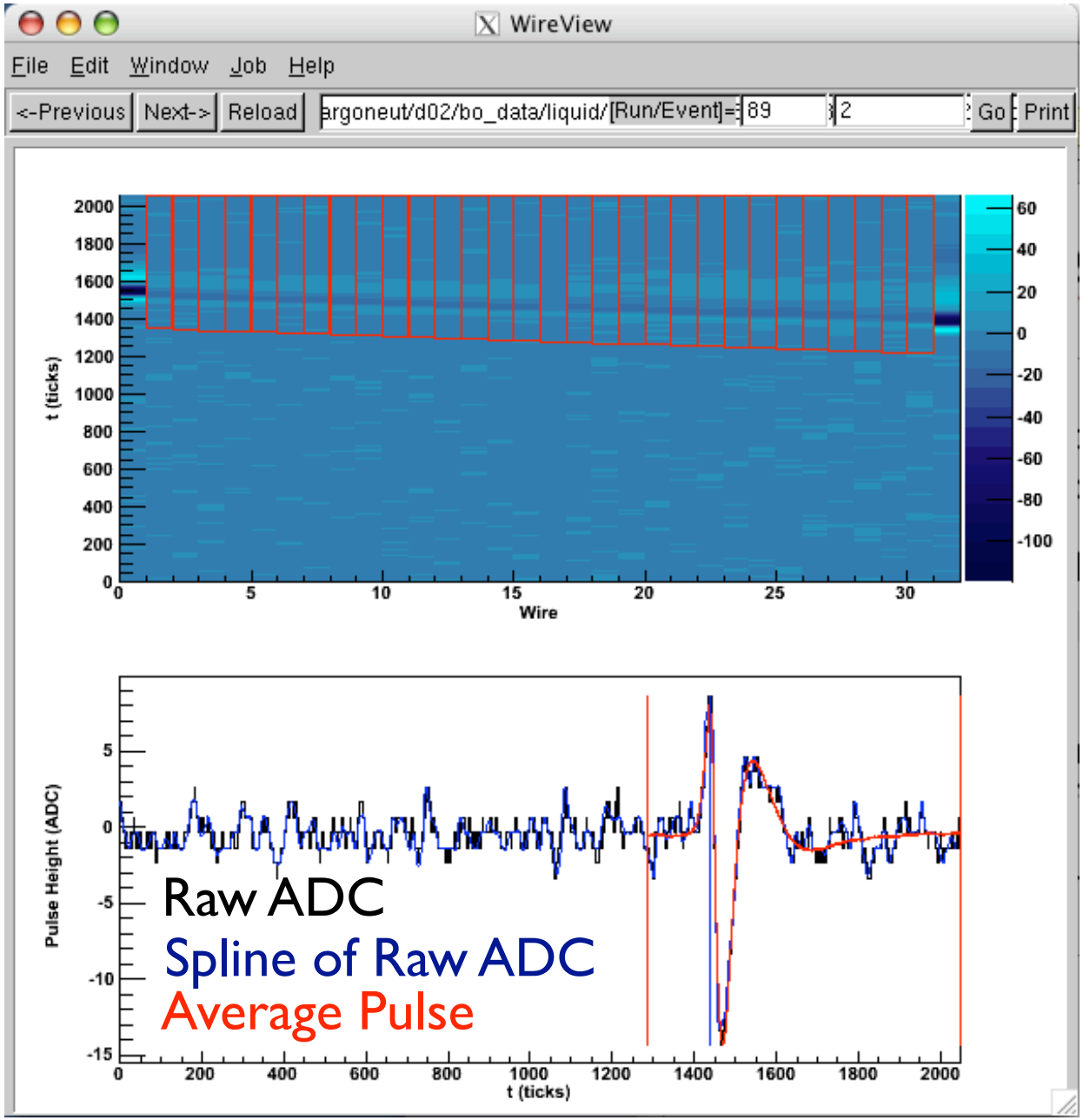
- Bo is LAr electronics test stand in PAB
- LArSoft code being used to analyze the data from Bo
- Event display is shown at right





LArSoft Examples From Bo

- RawDigit object defined, as well as Wire and Hit objections
- Hit finding is implemented using average pulse shape of cosmic ray muons
- Event display, hit finding etc, will work for μBooNE when MC files are available
- Algorithms use geometry to determine specifics of the detector



Future Plans

- Discussion of data structures, coding conventions, external products to use
- Implementation of detector simulation software
- Hold software tutorial for working in LArSoft environment - date to be determined, most likely done at FNAL